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ABSTRACT

This paper describes an interdisciplinary approach to conveying knowledge and promoting understanding of the disease of Acquired Immune Deficiency Syndrome (AIDS) at the middle school level in a conservative community. Discussion of AIDS was included in a sixth grade unit on communicable diseases designed to teach how diseases are transmitted, how diseases can be treated, and how diseases can be prevented. A team of four teachers participated in the project which integrated science, mathematics, social studies, and language arts. Specific activities in each area are described. Findings of the project indicated that stress was taken off the teachers, students were eager learners, and there were no parental complaints or concerns raised during the 5-week unit. (Contains 21 references.) (ND)

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How can you teach middle grade students about the effects of AIDS and the HIV virus in a conservative community?

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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How can you teach middle grade students about the effects of AIDS and the HIV virus in a conservative community?

ABSTRACT:

In keeping with the values expressed by our conservative community, we needed to come up with an innovative way to convey knowledge and promote an understanding of the deadly disease of AIDS. Since the community had recently experienced one of its young people dying of AIDS, the time was prime for us to act.

Availing ourselves of current research, we decided to undertake an interdisciplinary approach, giving each teacher an equal share in the process. Rather than taking the chance of defending a specific unit on AIDS, which had met with opposition in the past, we decided to include the disease in the context of a unit on communicable diseases. Children need to learn how diseases are transmitted, how diseases can be treated, and how diseases can be prevented, so we included the HIV virus and AIDS in with other diseases such as chicken pox, tuberculosis, and hepatitis.

We offered a knowledge base through science, a historical perspective through social studies, a concept of numbers through math, and a means of expression through language arts. Stress was taken off the teachers, students were eager learners, and there was not one parental complaint or concern during the five-week unit. In fact, most parents became actively involved in the preparations and presentations, complimenting us on providing such a creative learning experience!

BACKGROUND: In our middle school of approximately 350 students, we usually have three sixth grade teachers, but a higher number of students this year gave us the luxury of having a fourth teacher. Currently, each homeroom consists of between 23 to

25 children, each teacher teaches one subject, the clock time is one hour per class, and students move with their homeroom in a clockwise direction. Teachers have one common planning time per week, and each day at least two have a planning time together. All physical education, art, and music classes are held in the afternoon, and four days a week students have an afternoon intervention time of one-half hour. During this time, students may travel to another homeroom for individual help or remediation across the disciplines. Each homeroom has one or two computers, and there is a pod of four networked Macintosh 575's in the language arts classroom.

Three years ago, Dr. James McConnell, a professor from Kent State University, came to our school once a week to conduct in-services on cooperative learning. The following year, one of the early pioneers and an expert in the field of middle school education, Dr. Gordon Vars, also from Kent State University, spent a year with us, familiarizing us with interdisciplinary teaching and developing an understanding of the transescent learner. The lessons learned were invaluable, and we become more appreciative as we continue learning.

INTERDISCIPLINARY UNIT PURPOSE:

Current research in middle school education promotes the use of team teaching and interdisciplinary units. Young adolescents find and enjoy more success when subjects are strongly linked to their lives. To incorporate these research findings into our course of study, we chose to develop an interdisciplinary plan to enlighten and inform our students about AIDS and other communicable diseases.

SCIENCE:

In compliance with arts in the classroom, part of the instructional plan was to

sing and act out the song, *Ring Around the Rosie*. After the singing and physical movements, we explored the historical significance of the tune. In Europe, during the time of the bubonic plague, it was thought that putting petals of flowers in pockets could help ward off the disease. This type of reasoning exemplified the type of scientific knowledge that was available during that time period, and provided the perfect avenue to guide students into thinking about bacteria and disease.

Students began by drawing a picture of what they imagined a bacteria and virus would look like under a microscope. After instruction, research, and examination of actual bacteria and virus slides, they drew a second picture, comparing their two pictures to show if their ideas had changed.

Each student was given a checklist about disease, allowing them the responsibility of checking off as they learned at their own pace, and given a detailed explanation of research expectations. By using visual aids and computer simulations, children learned the components of bacteria and virus, the human body's response to them, and the defenses needed by the body to combat them. Through drawing pictures and creating flow charts, they gained a working knowledge of how antibodies are produced in reaction to antigens, thus laying the foundation for investigating communicable diseases.

Students randomly selected a communicable disease to research by drawing a card identifying the name of the disease. Presentation dates were also randomly selected at this time. Cooperative research let students experience work the way scientists have worked throughout history, and offered an excellent way to work independently, yet cooperatively. In conjunction with their assigned disease, students were asked to complete three note cards from different sources. These note cards traveled with them to math class, where they constructed pop-up pamphlets to

highlight the disease symptoms and preventatives.

It was in science class that the children received their framework for research. They were asked to find symptoms, causes, and cures, then report on their findings. Two weeks of class time was devoted to teacher-facilitated active research. One week was provided to write the paper, with input encouraged from peers, teachers, and parents. Also during this week, students assembled their own Personal Resource Book. As classmates presented findings and research about their communicable disease, students at their seats recorded notes and made a listing of symptoms, causes, and cures in their Personal Resource Books. This information was saved and later used in the final evaluation.

Several assessment devices were used in the areas of science and health. The use of pre and post drawings, each with four criteria to be met, were used to measure student understanding of microorganisms. These drawings were evaluated using a rubric scale from 0 to 4. Oral presentations were self-evaluated and scored by the teacher and peers, also using a rubric, rating preparation, content, loudness, voice/diction, enthusiasm, and visual aids. Also, questions about disease, posed by students prior to beginning the unit, were placed in their folders and checked off as answers were found. Surveys taken upon completion of the unit showed 98 per cent of these student questions were answered.

As the final evaluation, five (5) case studies, each depicting a person suffering from a communicable disease, were presented. The student/investigator was asked to determine the disease by studying the picture and using the notes found in his/her Personal Resource Book. Thorough notes were vital for success.

Students did very well in their final evaluations, and there was a high level of satisfaction about the knowledge base they had learned. Children could speak in a

very knowledgeable fashion about how the AIDS virus and the common cold virus were applied, and similarities were drawn concerning cures and preventative measures. Students realized how much power they have in preventing communicable diseases, and this was one of our main goals in teaching the unit.

MATH:

The math connection was an excellent integration to science, health, literature, and language arts.

The math teacher used a literature connection to help students understand factorials. In cooperative groups of three or four, students read and discussed questions and possible answers, using various problem-solving strategies. Next, the teacher read aloud Anno's Mysterious Multiplying Jar, by Masaichiro and Mitsumasa Anno, pausing during appropriate times for discussion and demonstration on the overhead projector. Students then returned to their cooperative groups and used their understanding of factorials to find solutions to the questions previously posed, discussing their findings with the whole group. The science and health connection was made by generating a discussion on the relation of the story to the rapid spread of communicable diseases.

Students then created a real-life problem requiring the use of a factorial, telling about it in story form. They had to solve it and share their stories with the class. Illustrations were optional. Assessment was made through observation.

As follow-up activities, they used the data and statistical information found when researching their communicable disease, and created a bar graph and/or chart, culminating peak years of scientific discoveries. They analyzed the graphs, made predictions, talked about percentages, and discussed the completed analysis with the

whole class.

Next, they created a Fast Fact Bulletin/Pamphlet on their researched disease, using a pop-up or pop-out design. Completing this project clearly illustrated each student's understanding of the vast amount of material learned as part of an interdisciplinary unit.

Math students also applied the understanding of large numbers by reading and studying population density maps in relation to reported cases of their diseases. This made the connection to all areas, including social studies. To further provide enjoyment and strengthen listening skills, The King's Chessboard, by David Birch, was read aloud.

Enthusiasm ran high, especially over the pop-up pamphlets, and students were excited about doing things in math that related to what they were doing in science, social studies, and language arts. They made their own connections, and their positive comments provided fuel to our raging fire!

LANGUAGE ARTS:

The students approached language arts with a basic knowledge of the subject of communicable diseases. To meet the course of study for research skills and to link their disease from science and health, each student chose a specific hero from the scientific world - a scientist or an inventor - and researched his/her life. A list was provided so that each student was able to choose a different person. They proceeded to practice skimming, scanning, paraphrasing, and note taking. All work was done in class, with the teacher acting as a facilitator.

Each homeroom was offered several choices of projects or books to make, and they were able to concur on what was of interest them. They were in charge of the

selection, how it was going to be done, and how they were going to stay organized to meet deadlines. The next ten class periods were spent researching, both in the library and through the computers, and student-teacher conferences were held regularly to document progress. Directions for making several styles of books, all easily adaptable, were found in *READ! WRITE! PUBLISH!* from Creative Teaching Press.

Instead of the boring written report or research paper usually associated with this type of project, one class set out to arrange and organize their information into attractive, informative Person Books. Each student was given a detailed instruction sheet and checklist to follow. The books were written in the first person narrative, involved art skills and creativity, and were "dressed" to resemble their scientific person. The completed books were far beyond anything we expected, and the resemblance to the various scientists was often uncanny.

Another class opted to do two types of books, a Scientific Wheel Book and a Scientific Step Book. They followed the same type of detailed instruction sheet and checklist for their particular choices, and made the connection between their disease and their scientific person in the form of a picture-based book.

The class with the most diverse learners and an inclusionary special education teacher, chose to gather their information and present it in the form of a Scientific Quilt An instruction sheet and checklist was given for this project, which required the same amount of research, but less writing. Each person was responsible for only one page. When completed, this page, complete with a picture of the scientific person, was mounted, laminated, and became one of the yarn-tied squares forming a quilt pattern. To make a multicultural connection and to honor Black History Month, the class researched all African-American scientific people, male and female. The finished product was striking and will be used for years to come.

A Scientific Pocket Book, or "Who Am I?" Book, was selected by the final class. This was done to relay information and to serve as a guessing game for students to play and learn facts, thus the name Pocket Book, because each page contained a pocket to hold a data card of information. For variation, everyone in this class researched a female scientist. All work was laminated and bound into a class book. Each person submitted a cover design, and a class vote determined the one to be reproduced and used.

Students had in-put in assessment through the use of rubrics and through an ungraded Oral Language Checklist done by the teacher. The purpose of the checklist was to make them aware of the areas that needed improvement and to emphasize areas of success. It is an excellent tool to assess every type of learner, and our included students saw many of the same success checks as students who were not classified as diverse.

As an extra-special ending for this unit, we had a "Dress Like Your Scientist" Tea for parents to attend. In a relaxed, coffee-house style, they were able to watch their junior scientist/researcher give a talk about "their" life in science. Each talk was video-taped and broadcast over our television network for the entire school to enjoy.

SOCIAL STUDIES:

The social studies connection was unique. In keeping with the theme, students constructed a three-tiered time line, linking the disease, the scientist, and the area of the world where the disease was prevalent. They chose to write a paragraph on three matching events from the time lines, highlighting concurrent information as they presented their findings to their peers. This culminated their study of disease, scientist, and country.

Although the social studies connection may look short in words, the actual process was very in-depth and time consuming. The students were very actively involved in their research, and their strings of time lines filled the hall!

ART, MUSIC, and PHYSICAL EDUCATION:

The art teacher chose to do a historical perspective, a collage of inventors, and posters of discovery. These were displayed at the tea. In music class, they discussed emotions and music, and in physical education the fitness and aerobics exercises were set to music. We hope to increase integration in these special areas as the teachers become more comfortable with working together toward a common goal.

CONCLUSION:

This was the first undertaking of such magnitude for our team. Even though we had collaborated on units in the past, the pride that came out of this particular unit was insurmountable. As teachers, we experienced all of the pains of growth. We remember vividly the smiles and successes, while forgetting the pain and frustrations which are an integral part of any educational progress.

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